Physical Abuse in Children
(Non-Accidental Injury Syndrome)
Part 2: Confirming the diagnosis

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Highlights - Hoogtepunte

- Steps and requirements in establishing or confirming the diagnosis of NAIS.
- What the medical officer should know in instances of apparent fatal child abuse.
- The differential diagnosis of child abuse.

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- Stappe en voorskrifte om die diagnose van nie-ongeluksbeseringsindroom (NOBS) te maak en te bevestig.
- Wat die mediese beampte moet weet in sterfgevalle waar NOBS vermoed word.
- Die differensiële diagnose van NOBS.

A. INTRODUCTION

The implications of incorrect diagnosis of physical child abuse are enormous: either false positive or false negative diagnosis may result in irreparable damage to child, parent or both parties. It is vital that health and social workers do not fail to identify cases of physical child abuse, as an abused child has a 60% chance of recurrence of abuse and up to a 10% risk of eventual fatal injury. On the other hand, incorrectly labelling the parent as an abuser can cause severe distress, adding severe anguish and even guilt to the already bereaved state of the loving parent who may have lost a child to accidental injury.

Because of the grave implications in confirming or excluding this diagnosis, therefore, it is essential that all professionals involved be acutely aware of the need *to be particularly conscientious and thorough in the investigations and deliberations* when dealing with cases of suspected child abuse.

In part one, the risk factors for abuse, history taking and physical examination were discussed. (See *SA Fam Pract 2003;45:26-31*)

B. STEPS AND REQUIREMENTS IN ESTABLISHING OR CONFIRMING THE DIAGNOSIS OF NAIS

The diagnosis of non-accidental injury syndrome in children is primarily dependent on the medical practitioner or health worker maintaining a high index of suspicion when dealing with any form of injury in children. Furthermore, it is important to realise that the diagnosis and confirmation thereof should be a multi-disciplinary effort, involving various members of the health care team. The following may be listed as the steps and procedures to be followed by a health care worker when confronted by the possibility of physical child abuse:

1. Initial management

It is of cardinal importance, once the health practitioner entertains the possibility of physical child abuse, that he or she immediately becomes acutely aware of the further implications and that, in all respects, an *intensive and meticulous approach* is followed. This would include:

- Paying particular attention to the clinical history that is supplied.
- Taking time to obtain a history on more than one occasion (and from more than one source, where possible).
- Doing a very thorough and "top to toe" clinical examination of the child (preferably again on more than one occasion).

It should be remembered that some (fresh) bruises may become more readily visible after a further period of time (up to twenty-four hours) have elapsed.

2. Record keeping

It is vitally important that the practitioner pays particular attention to *note-keeping and clinical records*, writing down all the information as supplied by parents, as well as all clinical findings in great detail, with particular reference to times and dates and making liberal use of sketches and even photography.

3. Removing the child from the domestic environment

Once the practitioner considers the possibility of physical child abuse, it may be advisable (at the discretion of the clinician) to *remove the child from the domestic environment* by admitting him/her to a hospital or clinic ward. If

necessary, this can be done under the pretext that further and more comprehensive special investigations, requiring hospitalisation, are required for diagnosis. This action serves essentially three purposes: to remove the child from an environment where potential further damage may be done, to allow for thorough further clinical examination and special investigations and to provide an opportunity whereby further history can be obtained from the child (where applicable), without the possible intimidating or distracting presence of the parent/guardian.

4. Second opinion

It is important that an *objective second opinion* of an experienced colleague be obtained. This doctor should not be unduly primed or influenced as to the possibility of physical abuse before his evaluation of the child.

5. Hospitalisation and special investigations

Hospitalisation provides the opportunity for appropriate and extensive (if necessary) *special investigations*, to confirm the diagnosis and exclude other possible conditions which may mimic features of child abuse. This would entail, for example, radiological examination of the whole body, various blood tests (including haematologic tests to asses for example, the blood clotting profile), screening for drugs or medication, etc. Where indicated, highly specialised tests may be needed to exclude underlying genetic abnormalities or metabolic diseases. At this time, it will also be appropriate to ensure adequate photo-documentation of all injuries and associated abnormalities.

6. Social workers

Once the diagnosis of physical abuse is realistically considered by the medical practitioner, the *assistance of a social worker* should be enlisted in obtaining an evaluation and report pertaining to the domestic and social circumstances of the family and/or child victim.

7. Reporting to the authorities

Only when the diagnosis appears reasonably certain, based on the medical and social findings, should the case be *reported to the authorities* in terms of existing statutory requirements. The latter may include the regional health authorities as well as the South African Police Services.

C. STEPS IN CASES OF APPARENT FATAL CHILD ABUSE

In instances of apparently **fatal child abuse,** the following additional steps should be completed to ensure adequate investigation and confirmation of diagnosis:

1. A ***visit to the scene of death*** by the investigating medical practitioner (forensic medical officer or forensic pathologist), together with the investigating police officer, should be conducted.
2. It is inadvisable that the medico-legal investigation into the death of a child in cases of this nature be conducted by anyone other than a ***specialist forensic pathologist***, or at least a very experienced forensic medical officer. It is therefore essential that the responsible district surgeon or forensic medical officer establish immediate contact with a consultant forensic pathologist to arrange for transfer of the case for comprehensive investigation. Indeed, in all instances it would even be preferable for a second pathologist or medical colleague to attend such an examination in a watching brief capacity.
3. The post mortem examination should not be commenced until a ***comprehensive history*** pertaining to the possible sequence of events has been obtained and presented to the investigating forensic pathologist.
4. Prior to the dissection of the body, ***meticulous and extensive external examination*** of the deceased child should be conducted, with adequate photographic documentation of all aspects of the body (injured and unaffected parts). The post mortem could be delayed for a further twenty-four hours, thereby allowing for bruises to become more visible.
5. Full ***radiological investigation*** of the body (head, trunk and all four limbs) should be conducted prior to post mortem examination. The report of a specialist radiologist should be obtained in this regard.
6. The **post mortem examination** must be *comprehensively conducted*, being systematic and meticulous, with full photo-graphic documentation of all injuries or abnormalities as they are encountered: A full neuropathological examination (requiring formalin fixation and subsequent microscopic evaluation) of the brain should be done; enucleation of the eyes with microscopic examination should be carried out; detailed examination of all occult areas (such as footsoles, behind the ears, etc.) and body orifices (such as anal cleft, genital organs, ears and mouth) should be undertaken; comprehensive tissue samples for histological examination of all organs to exclude underlying and/or contributing diseases, should be done and blood and/or fluid samples should be collected for thorough microbiological, haematological and toxicological analysis. In particular, histological evaluation of injured sites (such as skin injuries, fractures etc.) should be undertaken to confirm the primary nature and the possible ages of such injuries.

D. DIFFERENTIAL DIAGNOSIS

The following conditions may present with signs and symptoms which may mimic physical abuse, possibly resulting in errors in diagnosis which clearly will be a source of acute distress to parents or even children themselves. The clinical examination and special investigations should be therefore specifically structured to exclude these differential diagnostic conditions.

1. Metabolic abnormalities

Metabolic abnormalities such as calcium deficiency, abnormalities in copper metabolism, vitamin D deficiency (rickets), vitamin C deficiency (scurvy), severe anaemias and hemophilia (bleeding tendencies), etc. These conditions may easily lead to bleeding tendencies with signs of bruising, which may be mistakenly interpreted as being due to abuse.

2. Bone abnormalities

Abnormalties of bone formation, such as *osteogenesis imperfecta* or brittle bones syndrome, may result in unusual fragility of bones with repeated fractures.

3. Skin lesions of another nature

Abnormal skin markings such as birth marks, skin conditions (such as chicken pox, dermatitis) and other unusual pigmentation (eg. Mongolian spot) may be confused with bruises.

4. Hair loss

Areas of hair loss due to skin diseases may be mistakenly diagnosed as being due to hair pulling. Hair loss due to habitual hair pulling by the child may also be found.

5. Iatrogenic injuries

Great care must be taken not to confuse injuries which may have been caused in attempts to treat or resuscitate the child (such as rib fractures caused by cardio-pulmonary compression manoeuvres or laryngeal injury during attempts at intubation, etc.), as being due to abuse.

6. SIDS and NAIS

There is an overlap in age grouping, during which the incidence of both sudden infant death syndrome ("cot death") and physical abuse is highest (between approximately a few months of age and two to three years). This can result in cases of fatal abuse not being investigated if a certificate of natural cause of death is mistakenly issued by a health care worker, based on the history as supplied by the parent/guardian. This is a common mistake and should be reason enough for medical practitioners never to issue such certificates in cases of suspected cot death.

7. Infanticide and NAIS

Distinction should be drawn between the concept of "infanticide" and non-accidental injury syndrome. Infanticide refers to the killing of a newborn infant or very young child, usually shortly after the birth of the child, by the mother. In most instances, the mental well-being of the mother has been compromised directly as a result of the pregnancy and/or childbirth. This category of murder or manslaughter is not specifically recognised as such in our law and represents a set of circumstances which are distinct from that of child abuse.

8. "Munchausen's Syndrome by Proxy"

The phenomenon of "Munchausen's Syndrome by Proxy" should be considered especially in cases where rare and/or unusual symptom complexes appear in otherwise healthy children, which symptoms do not appear to fit in with any known or recognised disease conditions. This may also be recognised when more than one child develops similar problems, or where there is a repetitive nature of such symptoms appearing over time in the same child. The diagnosis is often delayed as physicians do not usually include unnatural causes in their differential diagnosis of medical complications. Essentially, this condition represents the intentional (or even unintentional) injury or abuse of a child by a mother whose own emotional needs are reflected or addressed by the attention paid to the child. Again, careful attention to clinic or hospital records (from different sites) is required, and problems may only become apparent when child treatment registers are consulted.

The above conditions should therefore be objectively evaluated and excluded where necessary before physical abuse is suggested by the attending practitioner. The involvement of specialist colleagues (such as ophthalmologists, neurologists, paediatricians and radiologists) should be enlisted whenever uncertainty exists or where unusual conditions may be involved.

E. IN CONCLUSION

It must be emphasised that the effective and competent diagnosis (and hopefully, prevention) of this sad but prevalent social ill lies primarily in the following requirements being met:

- That all health care workers (especially those involved in primary health care of small children) be well aware of this condition, including the diverse nature thereof, the circumstances under which it may be found and the actual spectrum of clinical manifestations.
- That there be a meticulous and thorough approach in all cases of suspected abuse.
- That a multidisciplinary approach in diagnosis and treatment be followed.
- That a high index of suspicion be maintained, especially in cases of unusual or severe injury to children.
- That great care is taken in remaining objective at all times and in ensuring correct and scientifically validated diagnosis, which will stand the required test and scrutiny in a court of law, where necessary.❐

Please refer to page 51 for the CPD questionnaire.

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